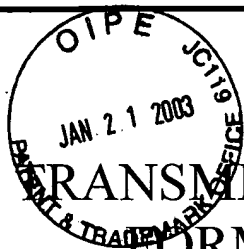


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Application Serial Number	09/289,507
Filing Date	April 9, 1999
First Named Inventor	Drzaic
Group Art Unit	2673
Examiner Name	Jimmy H. Nguyen
Attorney Docket No.	INK-039 (2108/36)
Patent No.	Not applicable
Issue Date	Not applicable

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## ENCLOSURES (check all that apply)

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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PATENT  
Atty. Docket No. INK-039  
(2108/36)

# 22/appeal  
Brief  
1-2483  
K. Powell

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPELLANTS: Drzaic *et al.*

SERIAL NUMBER: 09/289,507

ART UNIT: 2673

FILING DATE: April 9, 1999

EXAMINER: J.H. Nguyen

TITLE: Full Color Reflective Display with Multichromatic Sub-Pixels

**BRIEF ON APPEAL**

Commissioner for Patents  
Washington, D.C. 20231

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**JAN 23 2003**

**Technology Center 2800**

Sir:

This is an appeal from the final rejection of claims 38-42, 51, 54-65 and 68-79, mailed by the United States Patent and Trademark Office on June 17, 2002. The United States Patent and Trademark Office received a Notice of Appeal for this application on August 21, 2002.

A three-month extension of time up to and including January 21, 2003, for filing an Appeal Brief is respectfully requested under 37 C.F.R. § 1.136(a)(1)(ii). A petition for the extension of time and appropriate fee are being submitted concurrently. Also submitted with this Brief on Appeal is an Appendix presenting the claims on appeal, and Exhibit A presenting evidence of the real party in interest. The Appeal Brief, Appendix, and Exhibit A are submitted in triplicate in accord with 37 C.F.R. § 1.192(a).

(1) **Real Party in Interest**

The real party in interest in the above-identified patent application is E Ink Corporation. An Assignment perfecting E Ink Corporation's interest in this application was submitted to the U.S. Patent and Trademark Office on October 25, 1999. Copies of the Assignment, the Notice of Recordation, the Corrected Notice of Recordation and the PTO-stamped Recordation Form Cover Sheet are attached hereto as Exhibit A.

**(2) Related Appeals and Interferences**

A Notice of Appeal has been filed in United States Patent Application Serial No. 09/436,303 (Attorney Docket No.: INK-039DV), a divisional application of the instant application, and Appellants expect to file an Appeal Brief in accordance with 37 C.F.R. § 1.192). An Appeal has also been taken in United States Patent Application Serial No. 09/140,862 (Attorney Docket No.: INK-006). Both appeals may be considered related to the instant appeal.

**(3) Status of Claims**

Claims 38-42, 51 and 54-79 are pending in the instant application. Among them:

- Claims 38-42, 51, 54-65 and 68-79 are rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 5,961,804 to Jacobson *et al.* ("Jacobson");
- Claims 66 and 67 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims;
- Claim 41 is rejected in the Final Office Action but not presented for appeal; and
- Claims 40, 63, 64 and 68 are also rejected under 35 U.S.C. §112, first paragraph as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims on appeal appear in the Appendix attached hereto.

**(4) Status of Amendments**

In the Final Office Action mailed from the U.S. Patent and Trademark Office on June 17, 2002 ("the Final Office Action"), claims 38-42, 51, 54-65 and 68-79 were finally rejected under 35 U.S.C. §103(a) as unpatentable over Jacobson and claims 40, 63, 64 and 68 were rejected under 35 U.S.C. §112, first paragraph. Claims 66 and 67 were objected to as being dependent upon a rejected base claim, but were indicated as directed to allowable subject matter.

No amendment has been requested after the Final Office Action. The claims on appeal are claims 38-40, 42, 51, 54-65, and 68-79, which appear in the attached Appendix.

**(5) Summary of Invention**

As defined by the claims on appeal, Appellants' invention relates to an electrophoretic display element having at least two capsules. In each capsule, there are at least two pluralities of particles having different optical properties. The first capsule contains at least a plurality of white particles and another plurality of particles having an optical property different from white. The second capsule contains at least two pluralities of particles, at least one of which has an optical property different from those of the two pluralities of particles in the first capsule. The display element presents a visual display responsive to the application of an electrical signal to at least one of the capsules, and a white visual display is provided by at least the white particles. See, e.g., Specification, at pgs. 6-8, and 13-16.

In one aspect, as defined by claims 38-40, 42, 51, and 54-61, Appellants' invention relates to a multichromatic display element. In another aspect, as defined by claims 62-79, Appellants' invention relates to a full-color display element. See, e.g., Specification, at pg. 5, lns. 18-19.

In another aspect, Appellants' invention has at least three capsules. In some embodiments, as defined by claims 61 and 65, each of the three capsules has at least two pluralities of particles. In other embodiments, as defined by claims 42 and 75, each of the three capsules has at least three pluralities of particles.

In another aspect, Appellants' invention relates to an electrophoretic display element containing both colored and white particles. For example, as defined by claim 63, the pluralities of non-white particles may each have a red, green, or blue visual appearance, respectively. In another embodiment, as defined by claim 64, the pluralities of non-white particles may each have a yellow, cyan, or magenta visual appearance, respectively. See, e.g., Specification, at pgs. 13-16, and 30; and FIG. 3I.

(6) **Issues**

1. The first issue presented for appeal is whether appealed claims 40 and 68 comply with the requirement of 35 U.S.C. §112, first paragraph.
2. The second issue presented for appeal is whether appealed claims 63 and 64 comply with the requirement of 35 U.S.C. §112, first paragraph.
3. The third issue presented for appeal is whether appealed claims 38-40, 42, 51, 54-56, 61, 62, 65, and 68-75 are patentable under 35 U.S.C. § 103(a) over Jacobson.
4. The fourth issue presented for appeal is whether appealed claim 63 and 64 are patentable under 35 U.S.C. §103(a) over Jacobson.
5. The fifth issue presented for appeal is whether appealed claims 59 and 78 are patentable under 35 U.S.C. § 103(a) over Jacobson.
6. The sixth issue presented for appeal is whether appealed claims 60 and 79 are patentable under 35 U.S.C. § 103(a) over Jacobson.
7. The seventh issue presented for appeal is whether appealed claims 57, 58, 76, and 77 are patentable under 35 U.S.C. § 103(a) over Jacobson.
8. Although Appellants believe that the above-identified seven issues correspond to all of the pending rejections, Appellants also appeal any other bases for rejection of the pending claims which were not explicitly stated in the Final Office Action, but which may be regarded as still pending.

(7) **Grouping of Claims**

All the claims on appeal, i.e., 38-40, 42, 51, 54-65, and 68-79 do not stand or fall together.

Claims 38-39, 42, 51, 54-56, 61-62, 65, and 69-75 stand or fall together.

Claims 57, 58, 76 and 77 stand or fall together.

Claims 40 and 68 stand or fall together.

Claims 63 and 64 stand or fall together.

Claims 59 and 78 stand or fall together.

Claims 60 and 79 stand or fall together.

(8) **Appellants' Argument**

Appellants believe that the following arguments address each of the issues presented for appeal.

**8.1 Claims 40 and 68 comply with the requirements of 35 U.S.C. §112, first paragraph**

Appellants respectfully request reversal of the final rejection of claims 40 and 68 under 35 U.S.C. §112, first paragraph, because Appellants' specification allows persons of ordinary skill in the art to recognize that, as of the filing date of the instant application, Appellants had possession of the claimed subject matter.

It is a well settled rule that Appellants' disclosure obligation varies according to the art to which the invention pertains. The requirement of section 112, first paragraph, is satisfied when one skilled in the relevant art would understand what is intended and know how to carry it out. See *In re Hayes*, 25 U.S.P.Q.2d 1241, 982 F.2d 1527, 1533-1534 (1992); *Williams v. General Surgical Innovations, Inc.*, 178 F. Supp.2d 698, 705-706 (2002).

The Examiner asserts that claims 40 and 68 contain "subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s) at the time the application was filed, had possession of the claimed invention." (Final Office Action dated June 17, 2002, page 3). Appellants' claim 40 relates to a multichromatic electrophoretic display element including at least two capsules. One capsule contains a plurality of white particles and a plurality of particles having a *black* visual appearance. The other capsule contains a plurality of *black* particles and a plurality of particles visually different from white or black. The display element presents a visual display in response to the application of an electrical signal to at least one of the two capsules and a white visual display is provided by at least the white particles.

Appellants' claim 68 relates to a full-color electrophoretic display element including three capsules. One capsule contains a plurality white particles and a plurality of *black* particles. A second capsule contains a plurality of *black* particles and a plurality of particles having an optical property. Another capsule contains a plurality of particles visually different from white or black and a plurality of particles having an optical property. The display element presents a visual display in response to the application of an electrical signal to at least one of the three capsules and a white visual display is provided by at least the white particles.

Appellants teach, in the specification, for example, at page 6, lines 2-24:

The display element comprises a first capsule including a first species of particles having a first optical property and a second species of particles having a *second* optical property visually different from the first optical property. The display element further comprises a second capsule including a third species of particles having a third optical property and a fourth species of particles having a *fourth* optical property visually different from the third optical property . . . .

...It can also include a third capsule having a seventh species of particles having a seventh optical property, an eighth species of particles having a *eighth* optical property, and a ninth species of particles having a ninth optical property. The electrophoretic display element can include particles such that the first, third and seventh optical properties have a white visual appearance.

The electrophoretic display element can include particles such that the *second*, *fourth* and *eighth* optical properties have a *black* visual appearance. The electrophoretic display element can have at least one of the optical properties be red, green, blue, yellow, cyan, or magenta in visual appearance. The electrophoretic display element can have at least one of the optical properties comprising color, brightness, or reflectivity (emphasis added).

See also, the specification, at page 5, lines 18-26, at page 9, lines 7-9, and at page 13, lines 7-8.

The specification language, quoted above, teaches and enables various embodiments of the claimed display element. Specifically, the specification quoted above teaches the embodiment of claim 40 as including two capsules where the first capsule includes particles having a white visual appearance. The specification quoted above also teaches that the claimed first and second capsules may include black particles, i.e., that the "second" and "fourth" optical properties "have a black visual appearance." The claimed second capsule, as taught by the specification quoted above, may also include a plurality of particles having an optical property visually different from white or black. Namely, the specification teaches that at least one of the



optical properties may be red, green, blue, yellow, cyan, magenta, brightness, or reflectivity, which are optical properties visually different from white or black.

Similarly, the specification quoted above teaches and enables the embodiment of claim 68 including *three* capsules where the first capsule may include particles having a white visual appearance. The specification quoted above also teaches that the claimed first and second capsules may include black particles, i.e., that the “second” and “fourth” optical properties “have a black visual appearance.” The claimed second and third capsules, as taught by the specification quoted above, may also include a plurality of particles having an optical property different from white and black. Namely, the specification enumerates some examples of the optical properties as red, green, blue, yellow, cyan, magenta, color, brightness, or reflectivity. Therefore, all the claimed combinations of optical properties including the ones involving black particles are expressly taught by the instant specification.

Because the originally filed specification teaches and enables the skilled artisan to make and use the subject matter defined by claims 40 and 68, Appellants submit that the rejection under 35 U.S.C. §112 first paragraph is improper and request that the rejection be withdrawn.

**8.2     Claims 63 and 64 comply with the requirement of 35 U.S.C. §112, first paragraph**

Appellants respectfully request reversal of the final rejection of 63 and 64 under 35 U.S.C. §112, first paragraph, because Appellants’ specification allows persons of ordinary skill in the art to recognize that as of the filing date sought, Appellants invented the claimed invention. It is a well settled rule that the requirement of section 112, first paragraph, is satisfied when one skilled in the relevant art would understand what is intended and know how to carry it out. See In re Hayes , 25 U.S.P.Q.2d 1241, 982 F.2d 1527, 1533-1534 (1992); Williams v. General Surgical Innovations, Inc., 178 F.Supp.2d 698, 705-706 (2002).

Appellants’ claim 63 relates to a full-color electrophoretic display element including two capsules. One capsule contains a plurality of white particles and a plurality of *red* particles. The other capsule contains a plurality of *green* particles and a plurality of *blue* particles. The display element presents a visual display in response to the application of an electrical signal to at least one of the two capsules and a white visual display is provided by at least the white particles.

Appellants' claim 64 relates to a full-color electrophoretic display element including two capsules. One capsule contains a plurality of white particles and a plurality of *yellow* particles. The other capsule contains a plurality of *cyan* particles and a plurality of *magenta* particles. The display element presents a visual display in response to the application of an electrical signal to at least one of the two capsules and a white visual display is provided by at least the white particles.

Appellants teach, in the specification, for example, at page 13, lines 3-11:

In one embodiment, the ink may comprise sub-pixels capable of displaying different colors. Sub-pixels may be grouped to form pixels. In one particular embodiment, each sub-pixel contains red particles, green particles, and blue particles, respectively. In another particular embodiment, each sub-pixel contains cyan particles, yellow particles, and magenta particles, respectively. In each example, each sub-pixel can additionally include particles which are white and particles which are black. By addressing each sub-pixel to display some fraction of its colored particles, and some portion of the white and black particles, a pixel can be caused to give an appearance corresponding to a selected color at a selected brightness level.

See also, the Specification, at pg. 5, lns. 18-28; and pg. 6, lns. 1-23.

The specification language quoted above teaches and enables various embodiments of the claimed display element. The plain meaning of the passage quoted in section 8.1 is that red, green, blue, cyan, yellow, or magenta particles may be combined to form display or display elements having different optical properties. The specification also states elsewhere that the display element may include a first and a second capsule each containing two species of particles (pg. 6, lns. 2-7). In the first capsule, the two species of particles may have optical properties that are different from one another and the second capsule may contain two species of particles that have optical properties that are different from one another.

The specification at page 6, lines 2-7, and page 13, lines 5-8 teaches the embodiment of claim 63 including two capsules where the first capsule includes white particles and red particles. The specification teaches that there may be red particles and white particles, which may be in the first capsule, because red particles are visually different from white particles. The specification also teaches that there may be green particles and blue particles, which may be in the second capsule, because blue particles are visually different from green particles.

Similarly, the specification teaches and enables the embodiment of claim 64, because the specification at page 6, lines 2-7, and page 13, line 5-8 teaches the embodiment of claim 64 including two capsules where the first capsule includes white particles and yellow particles. The specification teaches that there may be yellow particles and white particles, which may be in the first capsule, because yellow particles are visually different from white particles. The specification also teaches that there may be cyan particles and magenta particles, which may be in the second capsule, because magenta particles are visually different from cyan particles.

Accordingly, because the originally filed specification teaches and enables the skilled artisan to make and use the subject matter defined by claims 63 and 64, Appellants submit that the rejection under 35 U.S.C. §112 first paragraph is improper and request that the rejection be withdrawn.

**8.3 Claims 38-40, 42, 51, 54-56, 61, 62, 65, and 68-75 are patentable under 35 U.S.C. §103(a) over Jacobson**

Appellants respectfully request reversal of the final rejections, under 35 U.S.C. § 103(a), of independent claim 38<sup>1</sup>, claims 39-40, 42, 51, 54-56 and 61 that depend from that claim, independent claim 62, and claims 65 and 68-75 that depend from that claim. The reference cited by the Examiner, Jacobson, fails to provide a *prima facie* case of obviousness with respect to the two independent claims on appeal.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of

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<sup>1</sup> In order to expedite consideration of the present appeal, Appellants clarify the status of claim 38. The Final Office Action notes that the clean version and the marked-up version of claim 38 are inconsistent and the Final Office Action appears to examine the claims based upon the clean version of the claims, as is consistent with 37 C.F.R. § 1.121(c)(3). Appellants confirm that the clean version of claim 38 was intended to be the claim presented for examination and for purpose of the instant appeal.

success must both be found in the prior art and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). MPEP 706.02(j).

The initial burden is on the Examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." Ex parte Clapp, 227 USPQ 972, 973 (BPAI 1985). MPEP 706.02(j).

**8.3.1 Jacobson does not provide the requisite motivation to combine**

Jacobson teaches away from modifying or combining its embodiments to include all the elements recited in the claims at issue in a single embodiment, and therefore, fails to provide the motivation to combine, which is required to make a *prima facie* case of obviousness. It is well settled that a reference "teaches away" when one of ordinary skill in the art, upon reading the reference, would be discouraged from following the path set forth by the applicant, or would be led in a divergent direction from the path taken by the applicant. See Tec Air, 192 F.3d at 1359-60; In re Fine, 837 F.2d at 1075; In re Caldwell, 319 F.2d at 255. A reference can lead one of ordinary skill in the art in a divergent direction from the path taken by an applicant by standing for and suggesting only paths divergent from applicant's. See, e.g., In re Caldwell, 319 F.2d at 255.

Claim 38, for example, recites a first capsule having a first, white particle and a second, non-white particle, and a second capsule having two particles, one of which is visually different from either the first or second particle. The Examiner, in the final Office Action, attempts to combine two separate embodiments in Jacobson to come up with the limitations recited in the present claims. Specifically, the Examiner attempts to combine particles employed by Jacobson in two distinct methods, namely, the use of "true white" or "process white," respectively, which each provides a white tonality.

According to the Examiner, a first embodiment of Jacobson teaches capsules having white and black particles (the final Office Action, pg. 5, ln. 11 to pg. 6, ln. 3), and a second embodiment teaches capsules having particles 410 and 610, and a third particle 620 which is a retroreflective glass sphere (the final Office Action, pg. 6, lns. 3-6). The Examiner then proceeds

to combine those two embodiments of Jacobson into one device with three capsules, each having a white particle, a black particle, and a retroreflective glass sphere. The basis for such combination, according to the Examiner, is that Jacobson teaches that the retroreflective glass sphere enhances pixel brightness.<sup>2</sup>

The Examiner's combination, however, is not soundly based. Jacobson sets out to employ retroreflective glass spheres to solve a problem specifically associated with *process white* in an electrophoretic display. According to Jacobson, process white, which combines non-white colors such as the specific combination of red, green, and blue, to effect a "white" result, suffers from inadequate tonality resembling a gray shade in comparison to a "true white tonality" (Jacobson, col. 2, lns. 4-11). Jacobson tries to provide "true white tonality" in *process white* capsules by enhancing display reflectivity, for example, by using a reflective coating on particles, aluminum flakes, glass retroreflector spheres, or emissive particles (Jacobson, col. 5, ln. 62 to col. 6, ln. 41).

A white capsule achieved through process white and a white capsule achieved through true white are two divergent paths in selecting particles for an electrophoretic display. A skilled artisan would realize that, in the instant invention, a true white tonality is already provided by virtue of a plurality of true white particles. The same artisan, taught by Jacobson that reflectivity-enhancing methods may supplement the tonality of a process white capsule to match that of a true white capsule, would refrain from employing any of the reflectivity-enhancing methods in a true white capsule because of the apparent lack of such need. In this regard, Appellants note that Jacobson does not describe using any of the reflectivity-enhancing methods in its first embodiment which has white and black particles in its capsules (Jacobson, col. 8, lns. 35-48). On the contrary, Jacobson teaches use of a "darkly dyed" suspending fluid in capsules containing white particles (Jacobson, col. 8, lns. 45-48). Jacobson leads one of ordinary skill in a divergent path and accordingly teaches away from the invention recited by Appellants' claims on appeal.

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<sup>2</sup> The Examiner states that Jacobson's embodiment that provides a process white with red, green, and blue particles, is not the embodiment used in the rejection, and instead, he was combining disclosure related to FIGS. 2B, 4E and 6A (the final Office Action, pg. 8, lns. 10-19). However, Jacobson describes FIG. 6A, which shows retroreflective glass spheres, as useful for a process white display with "individual colored states red, green, and blue." (Jacobson, col. 12, lns. 5-17).

### **8.3.2 Jacobson does not provide a reasonable expectation of success**

Contrary to the Examiner's assertion that "the selection of the particular colors of the microparticles would have been an obvious matter of design choice" (the Final Office Action, pg. 6, lns. 13-18), it is not at all clear that attempts at such combination would not compromise one or more goals stated in Jacobson.

On one hand, mixing a true white particle with a particle of a different visual property in the same capsule is going to affect many aspects of the display, at least because different pigments tend to carry different charges. As a result, such mixing is going to affect the delicate balance in a charged suspending fluid, which, in turn, affects the degree of bistability, i.e., how long charged particles can remain localized to sustain the desired visual effect after the activating electric field has been removed. Jacobson makes better bistability as a major goal of its invention (Jacobson, col. 1, ln. 57 to col. 2, ln. 3; and col. 10, lns. 30-46), further discouraging experimenting with mixing of true white particles with particles that can produce process white when the risk of poorer bistability by such mixing is not explored let alone minimized.

On the other hand, there is no teaching or suggestion in Jacobson that a skilled artisan can reasonably expect that substituting the color of any one of the red, green and blue particles with any other optical property, such as a different color, as suggested by the Examiner, will not disrupt the production of the "process white." On the contrary, Jacobson suggests that color-combination choices in producing the process white are not that broad. Thus, Jacobson does not provide a reasonable expectation that such a modification will be successful and in fact discourages such a modification.

For the above reasons, the Examiner fails to establish a *prima facie* case of obviousness. Accordingly, Appellants respectfully submit that instant claims 38 and 62, and their dependent claims are patentable over Jacobson.

### **8.4 Claims 63 and 64 are patentable under 35 U.S.C. §103(a) over Jacobson**

Appellants respectfully request reversal of the final rejection of claims 63 and 64, because Jacobson does not supply the requisite motivation to combine or modify in order to make a *prima facie* case of obviousness. Instant claim 63 recites an electrophoretic display element comprising two capsules where one capsule contains white and red particles, and the

other capsule contains green and blue particles. Instant claim 64 recites an electrophoretic display element comprising two capsules where one capsule contains white and yellow particles, and the other capsule contains cyan and magenta particles.

Jacobson does not supply any motivation to substitute any particle color in one of its full-color displays because it teaches away from such substitution. It is well settled that a reference “teaches away” when one of ordinary skill in the art, upon reading the reference, would be discouraged from following the path set forth by the applicant, or would be led in a divergent direction from the path taken by the applicant. Jacobson leads one of ordinary skill in a direction divergent from Appellants’ claimed color displays using true white particles for a white tonality, because Jacobson suggests providing a full-color display only by using “normal red, green, and blue pigmented particles” which, when combined, produce a process white distinct from a true white tonality. (See, e.g., col. 5, lns. 55-63).

Moreover, production of process white hinges on very specific combinations of colors. Substituting white particles for any of the colors in the red, green and blue combination would make Jacobson inoperable as a full-color display that produces process white. Thus, modifying the colors of Jacobson’s full-color display is improper because such a modification would render Jacobson inoperable for its intended purpose. See MPEP §§ 2145(X)C (8<sup>th</sup> Ed., August 2001).

Accordingly, Appellants respectfully request withdrawal of the rejection of claims 63 and 64 because, absent Appellants’ application, there is no suggestion or motivation to modify Jacobson to produce the presently claimed displays. Consequently, Appellants submit that claims 63 and 64 are novel and non-obvious over Jacobson and accordingly request withdrawal of the rejection of these claims.

#### **8.5 Claims 59 and 78 are patentable under 35 U.S.C. §103(a) over Jacobson**

Appellants respectfully request reversal of the final rejections, under 35 U.S.C. § 103(a), of claims 59 and 78, because Jacobson fails to teach or suggest all the limitations of claims 59 and 78, for example, where at least one electrode of a plurality of electrodes has a size different from others of the plurality of electrodes. It is well settled that, to establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

Specifically, Appellants' differently sized electrodes may be employed to enable the display to transition between largely transmissive and largely opaque modes of operation, i.e., in shutter mode. See specification at, for example, page 26, lines 1-10. Appellants respectfully submit that while Jacobson teaches one or more electrodes adjacent a microcapsule, Jacobson fails to teach or suggest a plurality of electrodes where at least one electrode of the plurality has a size different from others of the plurality of electrodes. Nor does Jacobson suggest the benefit or advantage of having differently sized electrodes. Appellants submit that all of the text and figures of Jacobson only teach one or more electrode of the same size adjacent a microcapsule. (See, e.g., FIGS. 3A-3F, FIGS. 4A-4E, FIGS. 5A-5D, FIGS. 6A-6B and FIGS. 8A-8B and related text).

For all of the reasons stated above, Appellants respectfully submit that claims 59 and 78 are patentable over Jacobson, at least because Jacobson, as a whole, fails to teach or fairly suggest at least one differently sized electrode among a plurality of electrodes.

**8.6 Claims 60 and 79 are patentable under 35 U.S.C. §103(a) over Jacobson**

Appellants respectfully request reversal of the final rejections, under 35 U.S.C. § 103(a), of claims 60 and 79, because Jacobson fails to teach or suggest all the claimed limitations, for example, that at least one of the electrodes of the plurality has a color different from others of the plurality of electrodes. It is well settled that, to establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

Specifically, Appellants' differently colored electrodes can create a visual display with the selected electrode colors. See, e.g., specification at pg. 22, lns. 8-9; and pg. 23, lns. 3-7. The Examiner asserts that Jacobson "discloses that the front electrode (300) should be transparent and the rear electrode (310) may be selective (col. 8, lines 51-53)." (Final Office Action Mailed June 17, 2002, Page 7). However, Jacobson, viewed as a whole, fails to teach or suggest the claimed differently-colored electrodes. Rather, Jacobson teaches that the electrodes 300 and 310 "may be selectively and oppositely biased such that...colored microparticles 330 contained within the microcapsule 320 translate either toward or away from one of the electrodes." (See, e.g., col. 8, lines 51-61). In other words, Jacobson teaches only that electrodes are selectively biased to attract microparticles to a front electrode where the particles become visible or to a rear



electrode where they are obscured. Accordingly, Jacobson fails to teach or suggest electrodes that are selective for color or the claimed plurality of electrodes where at least one of the electrodes has a color different from others of the plurality.

Accordingly, the rejection of claims 60 and 79 in view of Jacobson is improper, because Jacobson fails to teach or fairly suggest at least one differently colored electrode of a plurality of electrodes. Respectfully, Appellants request withdrawal of the rejection of claims 60 and 79.

**8.7     *Claims 57, 58, 76, and 77 are patentable under 35 U.S.C. §103(a) over Jacobson***

Appellants respectfully request reversal of the final rejections, under 35 U.S.C. § 103(a), of claims 57, 58, 76, and 77, because Jacobson fails to teach or suggest the claimed electrophoretic display apparatus set forth in these claims. It is well settled that a showing that the prior art provides every limitation of a claim and the invention as a whole is required to establish a prima facie case of obviousness. See *Graham v. John Deere Co.*, 383 U.S. 1, 17-18, 86 S.Ct. 684, 695-96 (1966); *In re Royka*, 490 F.2d 981, 985, 180 USPQ 580 (CCPA 1974); see also MPEP §§ 2142, 2143 (8th Ed., August 2001). Jacobson fails to teach or suggest an electrophoretic display element as set forth in the claims at issue, even if Jacobson's distinct embodiments are improperly combined.

Specifically, Jacobson teaches a display element having *a single type microcapsule* 320 adjacent at least one electrode 300 (FIG. 6A and col. 12, lns. 5-17). However, Jacobson fails to teach or fairly suggest different types of capsules adjacent at least one electrode. (See, e.g., FIGS. 8A-8B and related text). Also, Jacobson relies on one type of capsule having multiple species of particles to provide a color display. (e.g., Jacobson FIGS. 4A, 4B and col. 10, lns. 10-16). Jacobson fails to teach or suggest different types of capsules are adjacent at least a single electrode as required by claims 57, 58, 76, and 77. Accordingly, because Jacobson fails to teach or suggest these limitations, claims 57, 58, 76, and 77 are patentable over Jacobson.

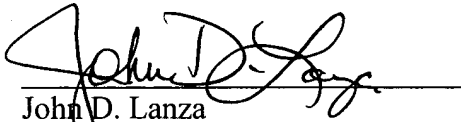
(9) **Conclusion**

For the reasons given above, it is respectfully requested the final rejections be reversed and the application be passed to issue with claims 38-40, 42, 51, 54-65, and 68-79 as presented in the Appendix attached hereto and with claims 66 and 67 which have been indicated to be directed to allowable subject matter by the Examiner.

A Transmittal for the filing of this Appeal Brief, as well as a Pétition and Fee for a three-month extension of time are submitted herewith. Appellants believe that the present filing necessitates no other fees other than the fee for a three-month extension of time. However, if any additional fees are due, the Commissioner is hereby authorized to charge any such fees to Attorney's Deposit Account No. 20-0531.

Respectfully submitted,

Date: January 21, 2003  
Reg. No.: 40,060  
Tel. No. (617) 248-7604  
Fax No. (617) 248-7100

  
John D. Lanza  
Attorney for Appellants  
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High Street Tower  
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2565900v1



APPENDIX

38. A multichromatic electrophoretic display element comprising:

first capsule including a first plurality of white particles and a second plurality of particles having a first optical property visually different from white; and  
a second capsule including a third plurality of particles having a second optical property visually different from white and the first optical property and a fourth plurality of particles having a third optical property;

wherein the element presents a visual display in response to the application of an electrical signal to at least one of said first capsule and said second capsule; and  
wherein a white visual display is provided by at least said first plurality of white particles.

39. The electrophoretic display element of claim 38 wherein the first and the third optical properties are substantially similar in appearance.

40. The electrophoretic display element of claim 39 wherein the first and the third optical properties have a black visual appearance.

41. (Rejected and not on appeal)

42. (Amended) The electrophoretic display element of claim 38 further comprising:  
in said first capsule, a fifth plurality of particles having a fourth optical property visually different from white and the first optical property;  
in said second capsule, a sixth plurality of particles having a fifth optical property visually different from the second optical property and the third optical property; and  
a third capsule including a seventh species of particles having a sixth optical property, an eighth species of particles having a seventh optical property, and a ninth species of particles having an eighth optical property;

wherein the element presents a visual display in response to the application of an electrical signal to at least one of said first capsule, said second capsule, and said third capsule.

43. (Cancelled)

44. (Cancelled)

45. (Cancelled)

46. (Cancelled)
47. (Cancelled)
48. (Cancelled)
49. (Cancelled)
50. (Cancelled)
51. (Amended) The electrophoretic display element of claim 38 wherein at least one of the optical properties comprises color.
52. (Cancelled)
53. (Cancelled)
54. (Amended) The electrophoretic display element of claim 38 wherein the capsules further include a suspending fluid.
55. The electrophoretic display element of claim 54 wherein the suspending fluid is substantially clear.
56. The electrophoretic display element of claim 54 wherein the suspending fluid is dyed.
57. A display apparatus comprising:
  - the display element of claim 38; and
  - at least one electrode adjacent said display element;wherein the apparatus presents a visual display in response to the application of an electrical signal via said electrode to said display element.
58. The display apparatus according to claim 57, further comprising a plurality of electrodes adjacent said display element.
59. The display apparatus according to claim 57 wherein at least one of the plurality of electrodes has a size different from others of the plurality of electrodes.
60. The display apparatus according to claim 57 wherein at least one of the plurality of electrodes has a color different from others of the plurality of electrodes.
61. The electrophoretic display element of claim 38 further comprising:
  - a third capsule including a fifth plurality of particles having a fourth optical property and a sixth plurality of particles having a fifth optical property; andwherein the element presents a visual display in response to the application of an electrical signal to at least one of said first capsule, said second capsule, and said third capsule.

62. A full-color electrophoretic display element comprising:  
a first capsule including a first plurality of white particles and a second plurality of particles having a first optical property visually different from white; and  
a second capsule including a third plurality of particles having a second optical property visually different from white and the first optical property and a fourth plurality of particles having a third optical property;  
wherein the element presents a visual display in response to the application of an electrical signal to at least one of said first capsule and said second capsule; and  
wherein a white visual display is provided by at least said first plurality of white particles.
63. The electrophoretic display element of claim 62 wherein the first optical property has a red visual appearance, the second optical property has a green visual appearance, and the third optical property has a blue visual appearance.
64. The electrophoretic display element of claim 62 wherein the first optical property has a yellow visual appearance, the second optical property has a cyan visual appearance, and the third optical property has a magenta visual appearance.
65. The electrophoretic display element of claim 62 further comprising:  
a third capsule including a fifth plurality of particles having a fourth optical property and a sixth plurality of particles having a fifth optical property; and  
wherein the element presents a visual display in response to the application of an electrical signal to at least one of said first capsule, said second capsule, and said third capsule.
66. (Objected to but indicated as allowable if rewritten in independent form)
67. (Objected to but indicated as allowable if rewritten in independent form)
68. The electrophoretic display element of claim 65 wherein the first and fifth plurality of particles optical properties have a black visual appearance.
69. The electrophoretic display element of claim 62 wherein at least one of the optical properties comprises color.
70. The electrophoretic display element of claim 62 wherein at least one of the optical properties comprises brightness.
71. The electrophoretic display element of claim 62 wherein at least one of the optical properties comprises reflectivity.

72. The electrophoretic display element of claim 62 wherein the capsules further include a suspending fluid.

73. The electrophoretic display element of claim 72 wherein the suspending fluid is substantially clear.

74. The electrophoretic display element of claim 72 wherein the suspending fluid is dyed.

75. The electrophoretic display element of claim 62 further comprising:

in said first capsule, a fifth plurality of particles having a fourth optical property visually different from white and the first optical property;

in said second capsule, a sixth plurality of particles having a fifth optical property visually different from the second optical property and the third optical property; and

a third capsule including a seventh plurality of particles having a sixth optical property, an eighth plurality of particles having a seventh optical property, and a ninth plurality of particles having an eighth optical property.

76. A display apparatus comprising:

the display element of claim 62; and

at least one electrode adjacent said display element;

wherein the apparatus presents a visual display in response to the application of an electrical signal via said electrode to said display element.

77. The display apparatus according to claim 76, further comprising a plurality of electrodes adjacent said display element.

78. The display apparatus according to claim 76 wherein said at least one of the plurality of electrodes has a size different from others of the plurality of electrodes.

79. The display apparatus according to claim 76 wherein said at least one of the plurality of electrodes has a color different from others of the plurality of electrodes.



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DRZAIC, PAUL

DOC DATE: 10/12/1999

**ASSIGNOR:**

WILCOX, RUSSELL J.

DOC DATE: 10/11/1999

**ASSIGNEE:**

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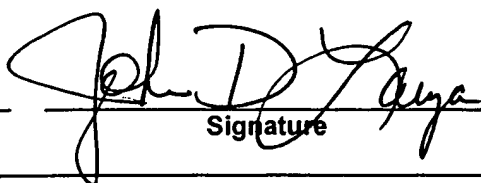
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John D. Lanza

Name of Person Signing



Signature

October 22, 1999

Date

**ASSIGNMENT**

WHEREAS, We, Paul Drzaic and Russell J. Wilcox have invented one or more improvements in:

**FULL COLOR REFLECTIVE DISPLAY WITH MULTICHROMATIC SUB-PIXELS**

described in an application (or provisional application) for Letters Patent of the United States:

☐ identified by Attorney Docket No. INK-039, and/or executed by us of even date herewith and about to be filed in the United States Patent Office;

☒ Serial No. 09/289,507 filed in the United States Patent Office on April 9, 1999; and

WHEREAS, E INK (hereinafter "ASSIGNEE"), a corporation organized and existing under the laws of the State of Delaware, and having a usual place of business at 45 Spinelli Place, Cambridge, Massachusetts 02138 desires to acquire an interest therein, in accordance with agreements duly entered into with us;

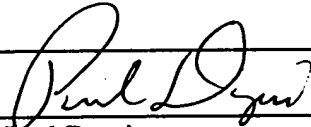

NOW, THEREFORE, to all whom it may concern be it known that for and in consideration of said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, we have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns, and legal representatives, our entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to the inventions described in said application, together with our entire right, title and interest in and to said application and such Letters Patent as may issue thereon or claim priority under international convention, including but not limited to continuations, divisionals, reissues, and reexaminations of said application of such Letters Patent; said inventions, applications and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by us had this assignment and sale not been made; we hereby convey all of our rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. We hereby acknowledge that this assignment, being of our entire right, title and interest in and to said inventions, carries with it the right in ASSIGNEE to apply for and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE's selection and the right to procure the grant of all Letters Patent to ASSIGNEE for its own name as assignee of our entire right, title and interest therein.

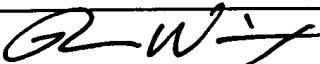

AND, we hereby further agree for ourselves and our executors and administrators to execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the aforesaid invention to said ASSIGNEE, its successors, assigns, and legal representatives, but at its or their expense and charges, including: the execution of applications for patents in foreign countries; the execution of substitution, reissue, divisional or continuation applications; and preliminary or other statements or the giving of testimony in any interference or other proceeding in which said inventions or any application or patent directed thereto

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AND, we do hereby authorize and request the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said ASSIGNEE, its successors, assigns, and legal representatives.

IN TESTIMONY WHEREOF, we have hereunto set our hands and affixed our seals the date set forth below.

		Inventor: <u></u> Paul Drzaic
Commonwealth of Massachusetts	)	
County of <u>Middlesex</u>	) ss	
Subscribed and sworn to before me, by the above-named Paul Drzaic this <u>12<sup>th</sup></u> day		
of <u>October</u> , 1999.		
		<u></u> Notary Public
		My Commission Expires: <u>Nov. 25, 2005</u>

		Inventor: <u></u> Russell J. Wilcox
Commonwealth of Massachusetts	)	
County of <u>Middlesex</u>	) ss	
Subscribed and sworn to before me, by the above-named Russell J. Wilcox this <u>11<sup>th</sup></u> day		
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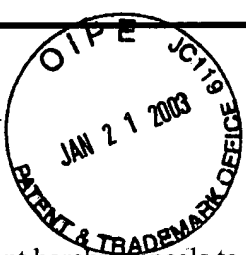
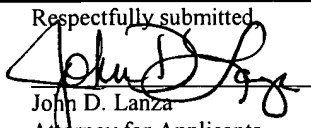
John D. Lanza

Name of Person Signing

Signature

October 22, 1999

Date

<b>NOTICE OF APPEAL FROM THE EXAMINER TO THE BOARD OF PATENT APPEALS AND INTERFERENCES AND/OR SUBMISSION OF APPEAL BRIEF</b>		Attorney Docket No. INK-039 (2108/36)	
	In re Application of Drzaic <i>et al.</i>		
	Application Serial Number: 09/289,507		
	Filed: April 9, 1999		
	Group Art Unit: 2673	Examiner: Jimmy H. Nguyen	
Applicant hereby appeals to the Board of Patent Appeals and Interferences from the decision of the Examiner dated <u>June 17, 2002</u> , rejecting the following claims: <u>38-42, 51, 54-65, and 68-79</u> .			
The fee for this Notice of Appeal is (37 CFR 1.17(b))		\$	
<input checked="" type="checkbox"/> Fee for Brief in support of appeal (37 CFR 1.17(c))		\$	320.00
<input checked="" type="checkbox"/> Applicant claims small entity status under 37 CFR 1.27, therefore, the fee(s) shown above is/are reduced by half, and the resulting fee is:		\$	160.00
<input checked="" type="checkbox"/> Appeal Brief enclosed in triplicate.			
<input checked="" type="checkbox"/> A check in the amount of \$625.00 which includes the fee is enclosed.			
<input type="checkbox"/> The Commissioner is hereby authorized to charge the required fee to Deposit Account No. 20-0531. Enclosed is a copy of this sheet.			
<input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment, to Deposit Account No. 20-0531.			
<input checked="" type="checkbox"/> A petition for an extension of time under 37 CFR 1.136(a) is enclosed.			
<input checked="" type="checkbox"/> Return receipt postcard enclosed.			
I am the <input type="checkbox"/> applicant <input type="checkbox"/> assignee of record of the entire interest. <input checked="" type="checkbox"/> attorney or agent of record. <input type="checkbox"/> attorney or agent under 37 CFR 1.34(a).			
Registration number if acting under 37 CFR 1.34(a). _____			
<b>CORRESPONDENCE ADDRESS</b>		<b>SIGNATURE BLOCK</b>	
Direct all correspondence to: Patent Administrator Testa, Hurwitz & Thibault, LLP High Street Tower 125 High Street Boston, MA 02110 Tel No.: (617) 248-7000 Fax No.: (617) 248-7100		Respectfully submitted,  John D. Lanza Attorney for Applicants Testa, Hurwitz & Thibault, LLP High Street Tower 125 High Street Boston, MA 02110	

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